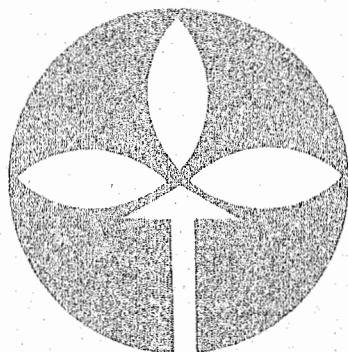


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DEPARTMENT OF AGRICULTURE AND FISHERIES, SOUTH AUSTRALIA

Agronomy Branch Report

PASTURE SEED PRODUCTION -

A COMPARISON OF RETURNS : 1978

by

W.O. (Mick) Coleman
Seed Production Adviser

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South East Regional Headquarters, Struan.

Report No. 97

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Since the 1974 publication of the bulletin, "Small Seeds, What is a Reasonable Return", there has been a demand for an up-dated issue. There was a dramatic fall in the local demand for seed after 1974 due to the slump in stock prices, but at the same time an accelerated rise in costs. A revision of the profitability of seed production is necessary to suit the current cost/price structure.

It is impossible to accurately estimate costs and returns in this industry because of the wide range of variables. Therefore, the figures used in the tables are to be presented as a guide only, and growers should work out their own profit margins, making adjustments to fit their conditions.

An attempt has been made to compare various crops on current figures - see Table I. This table shows that cereals, which are the most reliable crops to grow, have the lowest returns. The oil seed crops have more potential income and risk, whilst pasture seed production can be the most profitable if the right crop is grown at the right time and well managed, e.g. seedmaster phalaris.

Most costs have been taken from contract prices - see Table II. Allowance has been made for the fact that cereal growing is a broad area enterprise with a low value per tonne, whereas, pasture seed production is more intensive, produced at much higher risk, but with a high return per unit produced.

TYPE OF GROWERS

Two types of growers are involved in pasture seed production :-

- (a) The specialist who makes seed growing top priority. Table III gives figures for a dry grown crop and can be compared with irrigated crops shown in tables IV, V and VI.
- (b) The mixed farmer who regards seed production as a side-line, and so does not always give it priority or specialised treatment. Production is dry grown annual crops mainly as a rotational crop in his farming system, and provides extra income in the above average seasons.

THE POTENTIAL GROWER

There are a number of important aspects of seed production needing serious consideration in order to avoid heavy losses from inexperience.

An increasing proportion of seed is being grown by an intensive production system rather than as a by-product from pasture.

Intensive production of pasture seed involves a series of operations that need to be specialised, precise and thorough.

Some of these operations are costly, others inexpensive. Where costly equipment is used the scale of operation should aim at optimum use to achieve maximum economy.

Failure to apply certain practises correctly can greatly increase costs of other operations or reduce returns substantially.

VARIATIONS IN COSTS

The difference in farm operations does not vary much with the species to be grown. Therefore, tables listing management operations and costs for an "annual crop" and a perennial grass crop" would be a satisfactory cost summary for producing the major pasture seed crops - see Tables II to VI?

However, the costs of each operation varies from enterprise to enterprise for numerous reasons. These variations may include :-

1. Acquisition of cheaper, second hand machinery.
2. Sharing of machinery not frequently used, e.g. windrower etc.
3. Use of a cleaning crop prior to establishment of a seed crop.
4. Amount of land levelling.
5. Need for inter-row cultivation.
6. Application rate of herbicide for weed control depending on soil type.
7. Wet weather may cause poor weed control.
8. Pesticide usage.
9. Flooding can kill plants of susceptible species.
10. Type of irrigation used - flood, row, or spray.
11. Excessive moisture stress and poor harvesting conditions reduce yield.
12. Harvesting at optimum time for shattering susceptible cultivars.
13. Harvesting efficiency, e.g. the number of passes with a clover harvester is influenced by soil type.
14. The higher the yield the greater the harvesting and cleaning costs per hectare, but the lower the cost per unit of seed.
15. Seed cleaning efficiency, which is mainly determined by the amount of undesirable weed seed.

HARVESTING COSTS

This is one of the most expensive items, therefore, consideration must be given to the optimum amount of work to give economy in the operation. Two factors are involved, being the area to be harvested over an average of several years, and weather conditions for the number of harvesting days which can be expected over a reasonable period.

The harvesting costs are nearly twice as high in the South East as in the main cereal growing areas of this State and Victoria. This is due to the damper conditions prevailing in the South East. Bad weather can mean a 50% loss of time, therefore, good machinery is essential to cover an area quickly when conditions are ideal.

In purchasing the harvester a decision should be made on a scale of operations large enough to be economic.

The aim should be 200 hours of work per year for a new machine. If less than this, a second hand machine would probably be the better proposition, but great care must be taken in estimating likely repairs.

At least three different crops should be grown to spread the harvesting period, thus increasing the area covered by an expensive machine, and so lower

the costs per unit of seed produced.

When too cool for harvesting, it may be worth windrowing a crop which does not shatter readily, thus allowing this cultivar to be harvested later, if necessary, without undue loss of seed.

EXPECTED YIELDS AND RETURNS

Table VII lists some of the common pasture seed cultivars, giving the average yields and return prices from well managed irrigated crops. As the side-line farmers are likely to harvest only in the good seasons, it is not practical to include them in estimating the average yield of a particular crop.

In Table VII the figures represent the average yield of all crops, not just the best paddock. Some of the figures for 1977-78 season are estimates.

The potential that can be obtained is shown in brackets, as the top grower's average yield for a particular cultivar during each of the last five years.

Note the fall in price in 1975 and sudden rise in 1978.

The final column shows the five year average in yields, prices, and gross margins.

FUTURE PRICES

Prediction of future prices is impossible. There is a tendency on the local market for seed prices to fluctuate violently.

Where no marketing or production control operate, a glut is often followed by a shortage, and vice versa. At present phalaris and Mt. Barker sub. clover seed are quoted at a high figure. However, export demand, particularly for annual medics, some subterranean clover and lucerne seed has maintained stability in the industry.

OTHER CROP INCOME

For several months of the year a seed crop is grazed prior to "shutting up". Grazing is an additional source of income which has not been considered before in this bulletin. Besides offsetting some of the operating costs, grazing can also assist in the crop husbandry by controlling rank growth. In fact it has been claimed that the grazing of seed crops has maintained the same carrying capacity as before such crops were introduced.

In an experiment carried out at the Kybybolite Research Centre, it was found that the most economic return of seed plus wool was when seed crops were grazed until early September, then closed up. This time of the year is usually correct for closing up sub. clover seed crops also.

CONCLUSIONS

1. Growers should calculate their own costs using the tables as a guide.
2. Controlled grazing of seed crops at strategic times of the year is additional income.
3. More seed is likely to be grown under contract in the future. A contract price can be calculated from the formula :-

$$\text{Contract Price} = \frac{\text{Profit Target} + \text{Operating and Fixed Costs}}{\text{Expected Yield}}$$

4. Pasture seed crops are high risk crops.
5. For higher profits, a grower needs to keep a very close watch on his crops and do the right thing at the right time.

ACKNOWLEDGEMENTS

Much of the data given in this report was provided by a number of pasture seed producers in South Australia. We wish to thank them for their willing co-operation.

TABLE I

COMPARISON OF GROSS MARGINS OF ALTERNATIVE CROPS AND PASTURE SEED 1978

CROP	Wheat	Barley	Oats	Rape	Safflower	Linseed	Irrigated	Cert.	Cert.	Cert.	Cert.	Cert.
	\$/ha	\$/ha	\$/ha	\$/ha	\$/ha	\$/ha	\$/ha	\$/ha	\$/ha	\$/ha	\$/ha	\$/ha
Aver. Yield-Tonnes/ha	2.25	2.5	2.5	2.0	2.0	2.0	2.0	1.3	0.2	0.6	0.45	0.4
Gross Return - \$/tonne	85	80	60	200	190	140	220	230	1200	1200	3000	1200
VARIABLE COSTS												
1/6 Estab. Costs 2nd-6th years												
Preparation	29.00	29.00	26.50	29.00	29.00	32.30	29.00	30.20	23.25	35.75	20.00	12.00
Seed	11.00	8.85	7.00	2.70	10.80	21.20	3.85	21.00	18.00	37.50	-	-
Fertilizer	6.90	6.90	8.25	12.00	12.00	17.50	12.00	12.00	8.00	12.00	44.00	17.00
Weed Control	6.40	-	-	9.30	9.40	7.50	9.25	11.50	9.25	23.25	29.00	26.00
Insect Control	-	-	-	10.00	2.50	9.50	11.90	2.50	10.00	2.50	3.00	16.00
Irrigation	-	-	-	-	-	-	50.00	-	-	75.00	50.00	50.00
Windrowing	-	-	-	15.00	-	-	-	-	-	-	15.00	-
Harvesting preparation	-	-	-	-	-	-	-	-	10.00	15.00	-	24.00
Harvesting	25.00	25.00	25.00	35.00	30.00	30.00	35.00	30.00	50.00	75.00	60.00	30.00
Cartage	7.70	8.25	7.00	7.00	7.00	7.00	7.00	5.00	4.00	4.60	4.00	4.00
Seed cleaning	-	-	-	-	-	-	-	28.60	22.00	48.00	63.00	28.00
New Sacks @ 55¢	-	-	-	-	-	-	-	12.10	4.00	12.00	9.00	8.00
Certification	-	-	-	-	-	-	-	5.40	1.30	2.90	2.50	2.00
TOTAL VARIABLE COSTS	86.00	78.00	75.00	120.00	100.70	125.00	158.00	158.30	159.80	343.50	320.00	217.00
GROSS RETURNS \$/ha	191.00	200.00	150.00	400.00	380.00	280.00	440.00	300.00	240.00	720.00	1350.00	480.00
GROSS MARGIN \$/ha	105.00	122.00	75.00	280.00	279.30	155.00	282.00	141.70	80.20	376.50	1030.00	263.00
(Further Details)	-	-	-	-	-	-	-	-	Table III	Table IV	Table V	Table VI

TABLE II

FARM OPERATIONAL COSTS

FROM CONTRACT RATES 1978

	\$
Ploughing	10.00/ha
Rotary Hoeing	15.00/hour
Cultivating	6.25/ha
Inter-row Culti.	10.00 "
Harrowing	2.50 "
Levelling	10.00 "
Seeding	11.50 "
Rolling	3.00 "
Top Dressing	1.00 "
Spraying - Boom	4.00 "
" - Mister	1.50 "
Mowing	7.50 "
Raking	2.50 "
Windrowing	15.00 "
Irrigation Flood X 3	50.00 "
Irrigation Spray X 3	75.00 "
Harvesting Cereal	25.00 "
Harvesting Clover-Irrig.	75.00 "
Harvesting Medic-Dry Grown	50.00 "
Harvesting Rape	35.00 "
Harvesting Sunflower	35.00 "
Harvesting Linseed	30.00 "
Harvesting Lupins	30.00 "
Harvesting Safflower	30.00 "
Harvesting Lucerne	30.00 "
Desiccation Lucerne	24.00 "
Cartage per km per tonne	15 ¢
Cleaning Seed-Variou/kg or tonne	
Sacks - Past. seed X 2	1.00/bag seed
Sacks - Cereals	55 ¢
Certification - Pad. Insp.	50 ¢/ha
Certification Certified seed	20 ¢/sack
Certification Basic seed	40 ¢/sack

TABLE III

ANNUAL CROP - Jemalong Barrel Medic

Dry grown - Yield 200/kg/ha

VARIABLE COSTS

<u>Preparation</u>	\$/ha.	\$/ha.
Scarify	6.25	
Harrow	2.50	
Sowing	11.50	
Rolling	3.00	

<u>TOTAL PREPARATION</u>		23.25.
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Seed 12 kg/ha @ \$1.50		18.00
Fertilizer 140 kg Super		8.00
Weed Control - Treflan @ 1.5 l @ \$3.50 + Boom		9.25
Insect Control - E. Mite	2.50	
Aphids	<u>7.25</u>	10.00

<u>Harvesting</u> - Mowing	5.00	
Raking	2.50	
Meshing	2.50	
Clover Harvester	50.00	
Carting	<u>4.00</u>	

<u>TOTAL HARVESTING</u>		<u>64.00</u>
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132.50

Certification

Seed Cleaning 200 kg @ 11 ¢		22.00
New sacks 8 @ 50 ¢		4.00
Certification - 50 ¢/ha + 20 ¢/50kg		<u>1.30</u>

TOTAL VARIABLE COSTS 159.80

RETURNS 200 kg @ \$1.20 240.00GROSS MARGIN \$/ha 80.20

TABLE IV

ANNUAL CROP - Clare Sub. Clover

With Irrigation - Yield 600 kg/ha

VARIABLE COSTS

<u>Preparation</u>	\$/ha.	\$/ha.
Ploughing	10.00	
Harrowing	2.50	
Scarify	6.25	
Harrowing	2.50	
Rolling	3.00	
Sowing	<u>11.50</u>	

<u>TOTAL PREPARATION</u>		35.75
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Seed 25 kg/ha @ \$1.50		37.50
Fertilizer 200 kg Super		12.00
Weed Control - Treflan + 2,4-DB		23.25
Insect Control - Earth Mite		2.50
Irrigation - Spray 3 X		75.00

<u>Harvesting</u> - Mowing	5.00	
Raking	2.50	
Harrow)		
Meshing)	7.50	

Clover Harvester	75.00	
Carting	<u>4.60</u>	

<u>TOTAL HARVESTING</u>		<u>94.60</u>
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280.60

Certification

Seed Cleaning 600 kg @ 8 ¢		48.00
New sacks 24 @ 50 ¢		12.00
Certification - 50 ¢/ha + 20 ¢/50kg		<u>2.90</u>

TOTAL VARIABLE COSTS 343.50

RETURNS 600 kg @ \$1.20 720.00GROSS MARGIN \$/ha 376.50

TABLE V

PERENNIAL GRASS SEED CROP

Seedmaster Phalaris - 2nd to 6th year
With Irrigation - Yield 450 kg/ha

Establishment Costs - (First Year)

	\$
Ploughing	10.00
Harrowing 2x	5.00
Scarify	6.25
Levelling	10.00
Top Dressing 200 kg	12.00
Rolling	3.00
Sowing-Carbon 17 kg	21.00
Seed 1.5kg & \$4	6.00
Sowing + bag lime	23.20
Herbicide-Diuron	23.55
<u>Total Estab. Costs</u>	<u>120.00</u>

VARIABLE COSTS

1/6 of Establishment Cost (2nd-6th yr.)

20.00

Mowing	7.50	
Burning	3.00	
Inter-row cultivating	<u>10.00</u>	20.50
Weed Control-Diuron-Boom		29.00
Insect Control-DDT-Mister	3.00	3.00
Fertilizer-Super	10.00	
Nit.-1 sack	13.00	
" 2 sacks	<u>21.00</u>	44.00
Irrigation Flood or Row 3 x		50.00
Harvesting - Windrowing		15.00
" Header		60.00
" Cartage		<u>4.00</u>
		245.50

Certification

Seed cleaning 450 kg @ 14¢	63.00
New Sacks 18 @ 50¢	9.00
Certification-50¢/ha+20¢/50kg	<u>2.50</u>

TOTAL VARIABLE COSTS	320.00
RETURNS 450 kg @ \$3	<u>1350.00</u>
GROSS MARGIN \$/ha	<u>1030.00</u>

TABLE VI

LUCERNE SEED CROP

Hunter River Lucerne - 2nd to 6th year
With Irrigation - Yield 400 kg/ha

Establishment Costs - (First Year)

	\$
Ploughing	10.00
Harrow 2x	5.00
Scarify	6.25
Levelling	10.00
Top Dressing Super	
+ Trace El.	20.00
Seed 3 kg/\$1.50	4.50
Inoculation	1.25
Sowing + bag lime	<u>15.00</u>
<u>Total Estab. Costs</u>	<u>72.00</u>

VARIABLE COSTS

1/6 of Establishment Cost (2nd to 6th yr.)

12.00

Fertilizer Super + T.El.(Aver.)	17.00
Weed Control - Diuron	26.00
Insect Control - Mister 5 x	16.00
Irrigation - Flood 3 x	50.00
Harvesting - Desiccate	24.00
" Header	30.00
" Cartage	<u>4.00</u>
	179.00
Certification	
Seed cleaning 400 kg @ 7¢	28.00
New sacks 16 @ 50¢	8.00
Certification-50¢/ha+20¢/50kg	<u>2.00</u>
TOTAL VARIABLE COSTS	217.00
RETURNS 400 @ \$1.20	<u>480.00</u>
GROSS MARGIN \$/ha	<u>263.00</u>

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TABLE VII

AVERAGE YIELDS (kg/ha AND PRICES (per kg.)

Cultivar			1974	1975	1976	1977	1978	Aver. over 5 yrs.	Gross Margin Av. over 5 yrs.
Lemalong Arrel Adic	Av. Yield	Best Grws.	634	714	620	622	637	645	\$278
	" "	Top Grower	(985)	(739)	(752)	(809)	(793)	(816)	\$411
	Price		99¢	98¢	90¢	90¢	\$1.20	99¢	
Arbinger Grand Adic	Av. Yield	Best Grws.	586	495	428	688	460	531	\$243
	" "	Top Grower	(956)	(701)	(584)	(888)	(958)	(817)	\$412
	Price		\$1.10	\$1.05	\$1.02	\$1.20	\$1.25	\$1.12	
Lare Ab. Lover	Av. Yield	Best Grws.	577	813	329	1008	660*	677*	\$304*
	" "	Top Grower	(705)	(1193)	(872)	(1409)	(800)*	(996)*	\$640*
	Price		\$1.20	\$1.00	\$1.00	\$1.05	\$1.20	\$1.09	
Linter Lver Lacerne	Av. Yield	Best Grws.	406	361	550	754	460*	506*	\$322*
	" "	Top Grower	(612)	(467)	(718)	(1250)	650*	(737)*	\$477*
	Price		\$1.85	77¢	95¢	\$1.20	\$1.20	\$1.19	
Lredmaster Lmalaris	Av. Yield	10 Best Grws.	459	597	450	465	457	486	\$410
	" "	Top Grower	(645)	(719)	(884)	(560)	(600)	(688)	\$670
	Price		\$1.87	95¢	88¢	90¢	\$3.00	\$1.52	
Lrometer Lescue	Av. Yield	10 Best Grws.	878	864	387	651	361	628	\$204
	" "	Top Grower	(1127)	(1401)	(870)	(976)	(694)	(1012)	\$500
	Price		90¢	35¢	55¢	68¢	\$2.00	89¢	
Lurrie Locksfoot	Av. Yield	10 Best Grws.	367	423	241	386	330	349	\$158
	" "	Top Grower	(573)	(788)	(394)	(570)	(648)	(595)	\$428
	Price		\$1.85	93¢	83¢	90¢	\$2.00	\$1.30	

* = Estimates.